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December 10, 2001

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Consumer Product Safety Commission
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Comments Regarding Mattress ANPR Flammability
(16 CFR 1633)
(Federal Register: October 11, 2001, Volume 66, # 197, Pages 51886-51891)

1. Risk of injury or fatality:

   a. As stated by the commission, the risk of injuries and fatalities associated with flammability of mattresses is very high. In fact, statistics from the National Fire Protection Association (NFPA) indicate that an average of 575 people have been killed each year between 1993 and 1997 from residential fires where the item first ignited is a mattress or bedding (of those 552 occurred in one and two family dwellings or apartments, with the rest in institutional environments or unknown). At the same time there were also an average of 2,928 injuries per year (2,777 of those in one and two family dwellings or apartments). Furthermore, statistics from NFPA also indicate that fire fatalities from residential fires where the item first ignited is a mattress or bedding are the second highest (closely following upholstered furniture) an undesirably high ranking achieved by this product many years ago, and not relinquished.

   b. It is also clear that individual mattresses can ignite very rapidly (often in a matter of seconds) from the application of very small ignition sources (often simply a match) and can result in fires as large as over 3 MW (this heat release rate was observed in a recent fire test with a commercial US residential mattress). Repeating information presented earlier to CPSC, at the California Bureau of Home Furnishings and Thermal Insulation (CBHF), Gordon Damant conducted a number of tests of mattresses and bedding systems in 1991 [Heat Release Tests of Mattresses and

Bedding Systems, by G.H. Damant and S. Nurbakhsh, October 1991] and found that rates of heat release of almost 2 MW in a small room could be achieved from a single mattress (in actual fact, the tests were terminated early by water extinguishment, to prevent destruction of the facility resulting from the fire). In those cases, the temperatures in the test room went up to almost 2,000°F (before extinguishment). Mattresses of the type that caused these severe fires can today be purchased commercially throughout the country: solid core non fire retarded conventional polyurethane foam, 6 inches thick, at 1.5 pounds per cubic foot density, with quilting and ticking. The same study also showed that mattresses could be made that released no more than 20-30 kW and increased room temperatures to values of less than 200°F, and yet were viable products. It is interesting that, at the same organization, the same researcher conducted studies 11 years earlier (on detention facility mattresses) indicating that mattresses could be produced that caused very little temperature increases in the same room (maximum temperatures of less than 200°F), one of them being a cotton mattress [Penal Institution Mattresses - A Fire Safety Study, La. Report SP-80-1, G.H. Damant, J.A. McCormack and S.S. Williams, March 1980].

c. It is clear that, even if not every residential mattress sold in the United States causes such a severe fire very rapidly, there is no regulation that prevents such products from being sold and from having the potential to cause severe harm.

d. It is also clear that bedding combinations (excluding the mattress) provide rates of heat release that do not exceed 200 kW, according to NIST tests (NISTIR 6497, discussed in the ANPRM notice). In fact, a typical bedding combination (2 sheets a blanket, a mattress pad and a pillow) does not exceed 80 kW, and reaches that value slowly, after between 3 and 7 minutes from bedding ignition (same NIST report). The NIST report states that "the bedclothes heat release rates are well below levels which pose a flashover threat". This is consistent with information available for many years, since the report by Gordon Damant from CBHF in 1991 showed peak rates of heat release of between 125-167 kW for such a system, with similar times to peak rate of heat release. Clearly, that is a situation which is easily avoidable by a victim who is not incapacitated, if the fire does not progress to the mattress.

e. A number of fire tests with mattresses of significantly improved flammability have shown that such flaming ignition sources can be resisted for a significant period of time, depending on the mattress and the ignition source used, before the mattress catches fire and causes a large fire of its own. It has been found that times of between 10 min and 45 min before a large fire occurs are quite common, even with mattresses that will eventually burn. For example, mattresses acquired commercially in the United Kingdom or intended for use in high risk applications (and meeting the corresponding requirements) have been shown to rarely, if ever, cause a fire large enough to pose a flashover threat on their own.

f. Thus, the issue is that it is imperative to ensure abundant time for escape by a victim before the fire gets out of control. Bedding alone (either without a mattress or with a mattress of significantly improved flammability) is capable of offering that time to escape. On the other hand, if a mattress of poor flammability is used (such as the typical residential mattress offered for sale in the United States), a situation is developed within a very short time. This must be avoided.

g. Ideally, a mattress should do all three of the following: (i) not generate a threat of flashover on its own, (ii) take a very long time to ignite and (iii) not release a significant amount of heat once ignited.

h. However, the most critical issue is to maximize the likelihood that the person using the mattress will be able to escape once a fire occurs, and that the mattress fire alone will not cause flashover of the bedroom. It is clear that a person who is not incapacitated will be able to walk away from a mattress on fire if there is a significant amount of time between ignition and a "big" fire: even children playing with ignition sources can see when a fire is growing enough to get out of control. Therefore, that requires that the person using the mattress have ample time to leave the fire area.

2. Characteristics of a test method that might form the basis of a rule:

a. It is clear that a fire test method must be used that protects the public against flaming ignition of mattresses.

b. As an example, in the United Kingdom, "mattresses, divans and bed bases" must comply with British Standard 7177, Specification for Resistance to ignition of mattresses, divans and bed bases. In that specification, domestic use mattresses must meet the "match flame equivalent" ignition source as well as the smoldering cigarette ignition source. At the same time, the Furniture and Furnishings Fire Regulations Act requires that fillings used in mattresses must meet the ignition source of a crib 5 from the British Standard 5852, as shown in British Standard 6807. Furthermore, BS 7177 requires that entire mattress, in other applications, must meet the ignition source of a crib 5 or a crib 7, depending on the application.

c. Mattresses used in most detention and correction environments, as well as some health care facilities (if they are not sprinklered) in the United States must meet either ASTM E 1590 or NFPA 267, with a peak rate of heat release of 250 kW and a total heat release of 40 MJ, or California Technical Bulleting 129, with a peak rate of heat release of 100 kW and a total heat release of 25 MJ, depending on the jurisdiction. All the tests mentioned are virtually identical, except that ASTM E 1590 and NFPA 267 do not include pass fail criteria, while CA TB 129 does. There are two potential drawbacks to these tests: (i) materials that melt and drip can falsely meet the test requirements simply by melting away from the ignition source and (ii) the test

requires a very expensive test layout which is beyond the means of any organization but major testing laboratories. The problem of melting and dripping can be solved by small differences in test design.

d. The test method developed by NIST (in NIST 6497) is basically similar, albeit more severe, to ASTM E 1590 or NFPA 267 or CA TB 129. It also suffers from the expensive test layout drawback, which is the reason why NIST is looking for a surrogate small scale test.

e. Whatever test is used, it is critical that the test ensures ample time to escape before a big fire occurs, and ensures that the mattress not cause flashover on its own. In spite of the opposition to accepting foreign ideas, clearly the British regulation has been effective in ensuring this outcome. Moreover, this regulation has not resulted in excessive price increases for consumers or for manufacturers.

f. It would probably be even safer to require an amendment to the British regulations, by ensuring that both all mattresses, and all mattress fillings, meet flaming ignition fire test requirements, and ones that are more severe than a match. Thus, I would suggest that the filling continue to be required to meet at least a crib 5 from BS 5852 (or an equivalent ignition source, such as a gas flame). I would also suggest that the mattresses be required not to cause a "large fire" within 15 min when exposed to a crib 5 (or equivalent) igniting typical bedding. One way of easily assessing a "large fire", without expensive instrumentation, is by measuring the height of the flame generated.

g. It is clear that whatever test method is used must ensure that the manufacture of mattresses remains commercially viable and is not used as a way of preventing small firms from continuing to participate in this market.

3. Materials for use in mattresses with improved flammability:

a. There are many manufacturers who advertise systems that can meet the requirements of California Technical Bulletin 133 (or its technical equivalents: ASTM E 1537 or NFPA 266) when made into upholstered furniture. Such materials (fillings, barriers and fabrics) can also be used for manufacturing mattresses.

b. The Fire Retardant Chemicals Association members manufacture a variety of additive systems that can be used for improving the fire performance of materials, whether they are fillings or fabrics.

c. Mattress constructions are being offered for sale in various institutional environments in the United States which offer much higher degrees of safety.

4. Effects on smoldering ignition:

It is well known that upholstery materials can smolder, and that includes some of the materials that have inherently better fire performance. Any regulation on flaming ignition must, of course, ensure that smoldering ignition from the effect of cigarettes does not again become a problem. In particular, attention must be placed on ticking fabrics with high cellulosic content.

Yours sincerely

Dr. Marcelo M. Hirschler

Mattress comment 11

National Association of State Fire Marshals
Comments on U.S. Consumer Product Safety Commission
Advance Notice of Proposed Rulemaking
Standard to Address Open Flame Ignition of Mattress/Bedding
December 10, 2001

The National Association of State Fire Marshals (NASFM) represents the most senior fire safety official in each of the fifty states and District of Columbia. Our mission is to protect life, property and the environment from fire. NASFM believes that four principles must be observed if that mission is to be achieved.

First, we must understand and address real-world fire scenarios -- how finished products perform when used by consumers. Second, as we pursue safer products we must take care to avoid unintended harm to health and environment. Third, we must rely on science for the questions as well as the answers. Finally, we believe that safety is most likely to be achieved when the public and private sectors work together.

The United States Consumer Product Safety Commission's Advance Notice of Proposed Rulemaking on a standard to address open flame ignition of mattresses/bedding authorizes work that corresponds in significant ways to the mission and principles described above. It falls short in just one respect.

The staff briefing materials demonstrate a clear understanding of the nature of mattress fires in the real world and acknowledge that bedding items, also known as bedclothes, are typically the first items ignited. Common sense dictates that in the real world mattresses are covered by pads, sheets, blankets, comforters and pillows. Science tells us that some of these items contribute little to the fuel load in a bedroom while some items of bedclothes contribute significantly. It follows logically that burning bedclothes are the primary ignition source of mattresses. But inexplicably, the briefing package does not propose to mitigate against the hazard posed by the most combustible of these bedclothes.

If the most combustible of these items were placed on a slab of cement and then ignited, science tells us that some would generate 150 kilowatts of energy for a sustained time. In the real world, no one chooses to sleep on cement pads. The only intended use of mattress pads, comforters, pillows and other bedclothes with highly combustible fillings is in conjunction with mattresses. One cannot logically separate the two. If we hope to save lives, then effective, science-based open flame standards should be set for the most combustible items of bedclothes as well as for the mattresses.

The briefing materials state that the Commission cannot protect people who are "intimate" with – that is, sleeping on – these materials. Indeed, an ignited comforter would burn rapidly and furiously, injuring or killing someone sleeping on it. We do not understand the Commission's reasoning for refusing to protect those consumers unfortunate enough to be "intimate" with the fire. We are certain the Commission would prohibit the sale of children's clothing made from the kinds of flammable materials that

many comforters and pillows contain. Yet children sleep with the most combustible of these bedding materials. No one is suggesting that bedclothes, mattresses or, for that matter, any product should be impervious to fire. But we would assert that common sense argues against using the most combustible materials in the deadliest of scenarios. In addition, a minimum open flame performance standard for bedclothes containing filling materials would likely increase the time it takes for the mattress to ignite, thus increasing the escape time of those in the household (both "intimate" with and more distant to the fire) and consequently saving more lives than the current proposal.

The briefing materials also suggest that bedclothes by themselves will not bring a room to flashover. Depending on the contents of a room, that may or may not be so. However, note that an electrical short circuit by itself will not bring most rooms to flashover, even though the Commission has encouraged the recall of scores of products that pose the problem.

We also observe that the Commission did not ignore the role of bedclothes when it addressed smoldering ignition – mattress pads, as well as mattresses, have their own standard in the Flammable Fabrics Act requirements for cigarette ignitions. It therefore seems inconsistent for the Commission to ignore the role of bedclothes in the case of open flame ignitions. Bedclothes that contain filling materials should have open flame ignition standards of their own. NASFM strongly urges the Commission to reconsider their decision, and include a separate flammability standard for bedclothes in this rulemaking.

Our criticism of the ANPR is limited to this one point. In so many other ways, we regard this project as a model for the way fire hazards should be addressed.

With the exception of bedclothes issue, the analysis and recommendations contained in the ANPR are based on honest, real-world scenarios and supported scientifically. The project is a model of cooperation. The International Sleep Products Association, representing mattress producers, and its affiliate, the Sleep Products Safety Council, funded the necessary research and chose the world's foremost fire scientists at the National Institute of Standards and Technology to conduct the research. They have worked cooperatively with the CPSC from the start. If the mattress industry were interested in anything less than an honest, scientific examination of the issues, it would not have gone to such lengths.

We congratulate the CPSC's technical staff for the quality of its work and express our appreciation to Commissioners Gall and Moore for their commitment to safety and their support of the ANPR. We are confident that the Commission will revisit the questions we have raised and, at the end the day, lives and property will be protected.

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December 10, 2001

Office of the Secretary
U.S. Consumer Product Safety Commission
Washington, DC 20207-0001

Re: 66 Fed. Reg. 51886/16 CFR Part 1633; Standard to Address Open Flame Ignition of Mattresses/Bedding; Comments on Advance Notice of Proposed Rulemaking

Dear Sir/Madam:

The Juvenile Product Manufacturers Association ("JPMA") is submitting comments on behalf of the juvenile and crib mattress industry to the Consumer Product Safety Commission ("CPSC" or the "Commission") in response to its request for public comment on the above-referenced Advance Notice of Proposed Rulemaking ("ANPR") published in the Federal Register on October 11, 2001 (66 Fed. Reg. 51886). The JPMA is a non-profit organization comprised of more than 300 manufacturers of juvenile products, which are sold nationally throughout the United States. In 2000, the industry had sales that exceeded $4 billion. Our membership includes producers of bedding products, including but not limited to sheets, comforters, blankets, crib bumpers, toddler beds, cribs and crib and youth bed mattresses.

Summary

JPMA supports reasonable and practical revisions to the existing smoldering-cigarette standard for mattresses and mattress pads, codified at 16 C.F.R. Part 1632 (the "Standard") that will reduce the deaths, injuries and property damage that can result when mattresses used by consumers for sleeping are ignited by a small open flame. This would require the development of a flammability standard that has hybrid testing provisions. We agree with the Commission that reducing the likelihood of flashover resulting from a bed fire is the appropriate performance objective for a new standard. However, rather than issue a new standard under Part 1633 for open-flame ignition performance (as may be contemplated), any new standard should take into account both smoldering cigarette **and** small open-flame ignitions, and should supercede the

existing standard under Part 1632. Furthermore, we request that the new standard measure mattress performance based on the combustibility of the finished product subject to the standard (as opposed to the combustibility of the component parts of such products), and set performance criteria that are easily reproducible and suitable for manufacturers to follow at their own premises. We also believe that any rulemaking should incorporate a detailed risk/benefit analysis prior to its implementation. We note that the very same concerns noted by the CPSC Staff were also crucial factors put forth as part of the CPSC's rationale for development of a new multi-purpose Disposable Lighter Standard (16 C.F.R. 1145 and 1212 (FR Vol. 64, No. 245) and it is important that, in analyzing ways to reduce risk from household bed fires, the impact of those standards and a decrease in smoking by the general U.S. population, be considered. We do not believe it is necessary or advisable for the CPSC Staff to seek to regulate or set standards for flammability of cotton bedding, since our own experience indicated that there exists a strong historical consumer preference for cotton or cotton blend bedding.

Comments on ANPR

Our comments on the ANPR are as follows:

1. The "Risk of Injury" and Regulatory Alternatives to Address Such Risk

The "risk of injury" that is the appropriate focus of the anticipated rulemaking is the risk of deaths, injuries, and property damage that result when fabric products used by a typical consumer for sleeping on a bed are ignited. In this regard, we agree with the statements in the ANPR regarding injuries and property damage that can result from such fires. What is not clear from the ANPR is whether this risk of injury or property damage is a continuing prevalent problem in relation to the population at large and whether this risk has been significantly abated as a result of changes in demographics, consumer behavior and advances in technologies of household products and appliances.

When the Standard was first promulgated in the early 1970s, cigarette-ignited bed fires were statistically identified as a significant fire hazard and the federal government concluded that the greatest societal benefit would be achieved by addressing the cigarette ignitability of mattresses and mattress pads. Seeking solutions to mattress fires caused by careless smokers was a logical starting point for improving product safety because (1) cigarette smoking in bed was a widespread practice and (2) the cigarette would burn through most of the bed accessories without igniting them. Thirty years ago, the Commission recognized that the issue sought to be addressed was a narrow one necessitating a focus on mattresses and mattress pads, as opposed to all items of bedding.

However, the dynamics of open-flame ignited bed fires present an infinitely more complex issue than those associated with cigarette-ignited fires. Resulting fires can vary significantly depending on numerous factors, including but not limited to location of the original ignition, the presence of chemicals, oxygen flow/ventilation and the nature and size of the ignition source. Historically, there have been significant improvements in the fire safety in homes, as technology and the scientific understanding of fire dynamics have advanced. The Commission should be cautious in proceeding to revise or supplement an existing standard that has been effective in addressing burn though ignition of mattresses.

While the combustibility of bedding furniture or other decor items should be considered for its impact on mattress ignition characteristics, we do not believe the appropriate scope of any proposed rulemaking should be expanded to include such products. While fire statistics collected by the Commission, the National Association of State Fire Marshals ("NASFM") and the CPSC may indicate that bedding and other elements of room or household decor are points of ignition in some fires, the data also indicates that such fires often result from children playing with matches or cigarette lighters on, near, or under a bed. As we have noted, the CPSC's Disposable Lighter Standard should be having a significant beneficial effect on such data and incident rates and needs to be considered as the Commission considers this issue.

Flashover is the Appropriate Fire Performance Objective

The JPMA agrees with the Commission's statement in the ANPR that if a regulation is determined to be necessary and supported by the data, the appropriate performance objective for the anticipated rulemaking is to develop a flammability standard that will reduce the risk of flashover. We understand that the size, intensity and duration of a bedroom fire will substantially influence the seriousness of the fire and its consequences. Nevertheless, the basic qualities of bedding that make them useful, desirable and comfortable require the use of materials that are inherently more combustible when exposed to an open flame than many materials that lack these qualities. As a result, making mattresses impervious to fires ignited by burning bedding accessories is not practical or expected by the public. Additionally, not enough attention is being focused on consumer information and education that may have the most significant impact on reduction of bedroom fires.

A standard that seeks to reduce the likelihood of flashover, however, would make the mattresses less vulnerable to open-flame ignitions in general and should have a beneficial effect on all bedroom fires, regardless of source ignition.

The Standard Should be Based on Performance of the End Product
And Be Capable of Easy Use at the Manufacturer's Premises

We urge the Commission, in its anticipated rulemaking, to measure compliance with the resulting new standard in terms of the fire performance of the finished product or a prototype of the finished product, as opposed to the performance of the individual components used to make the finished product. In order to have a workable flammability standard that will encourage product innovation, the new standard should ideally allow for performance tests to be conducted using "scaled-down" versions of full-size finished products that have been shown to predict the performance of the same product in a full-scale fire test. Additionally, any standard should be capable of easily being replicated and performed at the production facility premises

2. Existing Standard that Could be Used as a Proposed Rule

It appears from this question and the reference to "16 CFR Part 1633" in the caption to the ANPR that the Commission is considering maintaining the existing standard codified in Part 1632 for cigarette ignitions, and establishing a separate standard under Part 1633 to address small open-flame ignitions. It appears from comments submitted that the mattress industry would strongly object to such an approach. They have urged the Commission to establish a single fully integrated flammability standard that would cover both smoldering cigarette and small open-flame We support their concerns in this regard.

We do not believe that there is an existing standard or portion of an existing standard that would address the risk of injury presented in a residential setting by an ignited bedding system or bedroom environment. It remains to be adequately established whether such a standard is required by the general public in the context of relative risks of such fires.

3. Any Rulemaking is Properly Limited to Mattresses

In our opinion, the CPSC should only consider developing and promulgating an open flame standard for mattresses, which can be incorporated into the existing standard. Consumers purchase and use a variety of bed products in a multitude of combinations, depending upon their personal needs. Some consumers choose to purchase blankets, others comforters and still others a combination of both. There is a tremendous variety of bedding products and variation among these products. Some bed products are foam, some are down, some are covered in polyester, some are covered in cotton, some are covered in a combination of both. These products are produced in different sizes, shapes and of a variety of materials. Consumers choose different combinations of products, depending upon personal taste, the area of the country they live in, and

seasonal and climatic conditions. As the CPSC considers development of a mandatory open flame standard for mattresses, we believe such a standard should be restricted to mattresses.

The JPMA appreciates the opportunity to submit these comments concerning the Commission's ANPR. Please contact us if you have any questions or require additional information.

Very truly yours,

LOCKER GREENBERG & BRAININ, P.C.
Attorneys for the Juvenile Products
Manufacturers Association

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December 10, 2001

Office of the Secretary
Consumer Product Safety Commission
Washington, DC 20207-0001

Re: 16 CFR Part 1633: Standard to Address Open Flame Ignition of Mattresses/Bedding

Comments of the Alliance for the Polyurethanes Industry on the Advance Notice of Proposed Rulemaking ("ANPR") published in the Federal Register on October 11, 2001. 66 Fed. Reg. 51886.

Dear Mr. Secretary:

The Alliance for the Polyurethanes Industry (API) is pleased to submit these comments on behalf of its members who are suppliers of chemicals and equipment used to make polyurethane foam, an important component in most mattresses, and in other bedding products. API is a business unit of the American Plastics Council, a non-profit trade association representing the plastics industry.

API supports the Comments filed by the Sleep Products Safety Council.

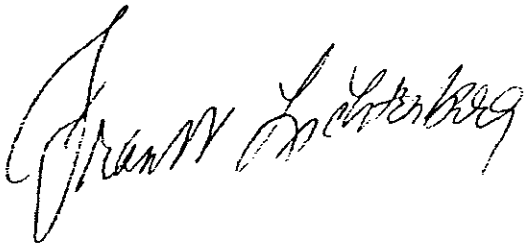
API believes these key points should be addressed in any standard to be developed for mattresses and bedding products:

- CPSC should promulgate a technically sound performance-based standard.
- The standard should identify a practical, performance-based testing requirement representative of bedding systems in residential use.
- The standard should require resistance to both smoldering cigarette ignition and small-open flame ignition.
- The testing should be representative of the finished article used in commerce. However, some component testing could be used as a basis for classification of components to reduce the burden of composite testing. API supports the CPSC's contract research at NIST to develop a composite small-scale bench test.
- The regulation should provide for meaningful consumer education and labeling that will address residential fire prevention and safety concerns, including those associated with mattresses and bedding products.

- The standard should be a mandatory federal standard, and should pre-empt state and local standards that address the same risk of injury.

Please do not hesitate to contact me if you have any questions or concerns.

Sincerely,



Fran W. Lichtenberg
Executive Director

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December 10, 2001

Office of the Secretary,
Consumer Product Safety Commission
Washington DC 20207-0001

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"Mattress ANPR"

Chestnut Ridge Foam, Inc. is submitting the following comments in favor of the proposed action to strengthen the fire performance characteristics of mattresses within the U.S.

Section E. of the ANPR could have been expanded to include the full-scale fire test now used by the U.S. Navy which was a 50kW sand diffusion burner underneath the mattress. The test uses this source for part of the test, then accelerates the ignition source to 100kW.

In addition, there is a full-scale mattress test referenced in ASTM F 1870 (Section 10) which uses a 50 kW gas burner which is placed above the mattress. This procedure has clearly shown that potential hazards are presented by some mattress composites which easily comply with California Technical Bulletin #129.

Obviously, a comprehensive bench-scale testing procedure would be very beneficial. However, if BS 5852 is considered, there would need to be some modifications. Some of the requirements in the smoldering mode are less than clear, and some composites which currently might fail this mode could perhaps be ideal mattress composite candidates.

Any full-scale or bench-scale test being considered, it is important that two facets of consistency be addressed.

1. Any desirable composite should continue to exhibit continued satisfactory performance over time.
2. Any composite which successfully complies with a full-scale and/or a bench-scale requirement should have component lot or batch consistency to some fire performance criteria such as ASTM E 1474 (heat release), or something similar. This allows proper quality control to "best ensure" that a composite mattress tested today will perform in a similar successful way if manufactured six months from now.

There are many new advancements in components used in the manufacturing of mattresses. Many fire performance advancements are transpiring both in "ticking" and foam options which were not even available two years ago.

If there appears to be a lack of consensus over future testing approach, and if this seems to bring the rulemaking to a crawl, then we would suggest to minimally act upon juvenile and infant bedding regulations to tackle a portion of the problem.

The consideration of our comments by the Commission is appreciated.

Sincerely,
Carl Ogburn
Vice President
Sales and Marketing
Chestnut Ridge Foam Inc.

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Stevenson, Todd A.

From: crfoam [crfoam@westol.com]
Sent: Monday, December 10, 2001 2:58 PM
To: cpsc-os@cpsc.gov
Subject: Mattress ANPR

Mattress ANPR.doc

Please see attached file for comments on Mattress ANPR in reference to "Standard to Address Open Flame Iginition of Mattresses/Bedding; Advance Notice of Proposed Rulemaking"

Thank you for consideration of my comments.

Carl Ogburn
Vice President
Sales and Marketing
Chestnut Ridge Foam, Inc.

SPSC
Sleep Products Safety Council

Attn: Margaret Neily
8 pages

December 10, 2001

Office of the Secretary
Consumer Product Safety Commission
Washington, DC 20207-0001

Re: 16 CFR Part 1633: Standard to Address Open Flame Ignition of Mattresses/Bedding; Comments on Advance Notice of Proposed Rulemaking

Dear Mr. Secretary:

The Sleep Products Safety Council ("SPSC") hereby responds on behalf of the U.S. mattress industry to the Consumer Product Safety Commission's ("CPSC" or the "Commission") request for public comment on the above-referenced Advance Notice of Proposed Rulemaking ("ANPR") published in the Federal Register on October 11, 2001. 66 Fed. Reg. 51886. The SPSC is a non-profit organization established in 1986 to disseminate consumer safety information, support scientific research, and promote public educational and other activities aimed at reducing hazards associated with sleep products. The SPSC is affiliated with the International Sleep Products Association, an industry trade association established in 1915 to represent the interests of mattress manufacturers and their suppliers in the United States, Canada, and abroad.

These comments are timely, having been filed within 60 days after publication of the ANPR.

Executive Summary

As you are aware, the mattress industry supports reasonable and economically practical revisions to the existing smoldering-cigarette standard for mattresses and mattress pads, codified at 16 C.F.R. Part 1632 (the "Existing Standard"), that will reduce the deaths, injuries, and property damage that can result when products used by consumers for sleeping on a bed are ignited by a small open flame. This would require the development of a flammability standard that covers the full "bedding system," which would include not only the mattress and the boxspring (collectively, the "sleep set"), but also those bedding accessories that are often the first products ignited in bedroom fires and that can have a significant impact on the size and intensity of a bed fire (such as the mattress pad, pillow, comforter, etc.).

In general, the SPSC agrees with the Commission that reducing the likelihood of flashover resulting from a bed fire is the appropriate performance objective for a new standard. We believe, however, that rather than issue a new standard under Part 1633 for open-flame ignition performance (as is apparently contemplated), any new standard should take into account both

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smoldering cigarette **and** small open-flame ignitions, and should supercede the Existing Standard under Part 1632. Furthermore, we request that the new standard (1) measure product performance based on the combustibility of each type of finished product subject to the standard (as opposed to the combustibility of the component parts of such products), and (2) set performance criteria that are suitable for manufacturers to follow using tests performed on their own premises.

As to existing or contemplated mandatory or voluntary standards that would address the risk of injury present when bedding systems are ignited, the SPSC is aware of nothing that would address the relevant risk of injury.

Comments on ANPR

The SPSC provides the following comments in response to the specific issues identified in the ANPR at 66 Federal Register at 51891, on which the CPSC has requested public input. Our comments follow the order in which these topics were listed in the ANPR.

I. The "Risk of Injury" and Regulatory Alternatives to Address Such Risk

A. The Risk of Injury is the Harm Caused by Ignited Fabric Products Used for Sleeping

The "risk of injury" that is the appropriate focus of the anticipated rulemaking is the risk of deaths, injuries, and property damage that result when fabric products used by a typical consumer for sleeping on a bed are ignited. In this regard, we agree with the statements in the ANPR regarding the significant role that ignited bedding accessories play in the ignition of sleep sets, and the deaths, injuries, and property damage that can result from such fires.

We disagree however, with the limited scope that the ANPR appears to propose by establishing an open flame standard for mattresses alone. Instead, the SPSC believes that not only are bedding accessories a fundamental part of the problem (since they create a much larger ignition source for the bed set than the small ignition source typically used to start the initial fire), they should also be a necessary part of the solution. Unless the critical contribution that burning bedding accessories have on the resulting sleep set fire is addressed, the SPSC submits that the Commission cannot discharge its legal responsibility to address the relevant risk of injury.

The Commission's well-established precedent under the Existing Standard requires that multiple products be subject to the same flammability standard under appropriate circumstances. When the Existing Standard was first promulgated in the early 1970s, federal regulators identified cigarette-ignited bed fires as statistically the most significant bed fire hazard at that time, and concluded that the greatest societal benefit would be achieved by addressing the cigarette ignitability of mattresses and mattress pads. Seeking solutions to mattress fires caused by careless smokers was also a logical starting point for improving product safety because the cigarette would burn through most of the bed accessories without igniting them (except for the mattress pad, which could be ignited by a

smoldering cigarette). Thus, the Commission recognized over 30 years ago that at least one type of bedding accessory – the mattress pad – had a significant involvement in cigarette-ignited bed fires. This recognition was reflected in the fact that the Existing Standard covers **both** mattresses and mattress pads. The dynamics of open-flame ignited bed fires, however, are more complex than those associated with cigarette ignited fires, and can vary significantly depending on numerous factors, including the nature and size of the ignition source. Historically, improvements in the fire safety of sleep sets have been incremental, as technology and the scientific understanding of fire dynamics have advanced. As a result, it may now be feasible to achieve additional improvements in bedroom fire safety to address small open-flame ignitions. To achieve the next incremental improvement, however, the Commission should broaden the scope of its proceeding to cover the full "bedding system."

As noted above, this system includes the mattress, the boxspring, and the bed accessories that are used with the sleep set (not only the mattress pad, but also the pillow, comforter, etc.) that can have a significant impact on the size and intensity of a bed fire. Given that most consumers use some or all of these accessories when they sleep, and each of them can contribute to the speed, intensity, and size of the resulting fire, we believe it is imperative that the regulatory process focuses on reducing the flammability of the entire bedding system.

B. The Commission Cannot Address the Relevant Risk of Injury Without Reducing the Combustibility of Bedding Accessories

The combustibility of the full bedding system should be addressed in the anticipated rulemaking for three reasons. First, even if one were to assume for the sake of discussion that sleep sets could be made completely impervious to fire, research shows that burning bed accessories themselves can be lethal. An SPSC-commissioned study conducted by the National Institute of Standards and Technology ("NIST") found that ignited bed accessories alone can generate a fire that is sufficiently hot (up to 200 Kilowatts or more) to kill the occupants of the bedroom quickly. Furthermore, fire experts know that the deadly gases generated from bedding accessory fires could result in the death of those in the bedroom even if they do not first succumb to the heat.

Second, burning bedding accessories alone can cause secondary fires to nearby objects. For example, when beds are positioned under or near a window, the nearby drapes can ignite when the bedding accessories burn. The same can occur with furniture or other items that are adjacent to or near the burning bedding accessories. Thus, although burning bedding accessories alone are not sufficient to cause flashover, the secondary fires to drapes, bedroom furniture, and other nearby articles ignited by the burning accessories can produce such a conflagration.

Third, burning bedding accessories pose a serious threat to fire safety as a significant ignition source for the underlying sleep set. Fire statistics collected by the Commission, the National Association of State Fire Marshals ("NASFM"), and the SPSC show that in many fires (approximately 70%), the bedding

accessories are the first products to ignite (as opposed to the sleep set itself). Such fires often result from children playing with matches or cigarette lighters on, near, or under a bed on which accessories are present.

The NIST research noted above also indicated that bedding accessories can have a material impact on how quickly a sleep set ignites and the resulting fire spreads, as well as the fire's intensity and the risk of flashover. NIST's tests demonstrated that when the bedding accessories are set afire, the resulting ignition source that threatens the bed set is substantial. Thus, a sleep set that can withstand a relatively small to moderate heat source (such as the small open-flame that is present with a lit match or cigarette lighter) might be vulnerable to the substantially large heat source produced by ignited bedding accessories. Conversely, reducing the fire that results when bedding accessories are ignited would also reduce the likelihood that the underlying sleep set will be ignited. Therefore, the Commission should consider the flammability of the full bedding system, given the critical interrelationship between the sleep set and the bedding accessories.

Such an approach is critical in order to distribute the burden of product modification in an economically equitable and efficient manner among the manufacturers of all bedding system products. Furthermore, without such a comprehensive approach, any theoretical improvements achieved by making sleep sets less combustible would be wasted if bedding accessories continue to produce fires that kill both the room occupants and those elsewhere in the dwelling when the fire radiates to other products and flashes over to threaten the entire dwelling.

The SPSC believes, however, that not all bedding accessories would need to be subject to a new flammability standard because their contribution to the ignition and spread of a typical bedroom fire would not be significant. For example, we would expect that conventional single-ply sheets and pillowcases would not need to be subject to such a standard.

C. Flashover is the Appropriate Fire Performance Objective

The SPSC agrees with the Commission's statement in the ANPR that the appropriate performance objective for the anticipated rulemaking is to develop a flammability standard that will reduce the risk of flashover. Fire experts inform us that the size, intensity, and duration of a bedroom fire will substantially influence the seriousness of the fire and its consequences to persons actually on (or under) the bed that is ignited, and to others in the bedroom or elsewhere in the dwelling. The more that these factors can be controlled, the more precious time that occupants of the room where the fire originates have to escape, other occupants of the dwelling have to detect the fire and to notify the local fire department, and the firefighters have to suppress the fire.

Nevertheless, the basic qualities of bedding systems that make them useful and desirable (for example, their comfort, support, durability) require the use of materials that are inherently more combustible when exposed to an open flame

than many materials that lack these qualities. As a result, making sleep sets impervious to fires ignited by burning bedding accessories is simply impractical given existing technology.

A standard that seeks to reduce the likelihood of flashover, however, would make the bedding system less vulnerable to open-flame ignitions in general, which should benefit all categories of bedroom fire victims. A bed fire that is smaller, slower spreading, and less intense will add valuable time for detection, escape, notification, and suppression. Such improvements should substantially reduce not only the deaths and injuries caused by flashover, but should also improve the survival rates for those that are on or under the ignited bed and others in the bedroom. Therefore, we think that the Commission has defined an appropriate objective for the next improvement in bedroom fire safety.

D. The Commission Should Set Several Other Objectives for its Anticipated Rulemaking

1. Compliance with the Standard Should be Measured Based on the Fire Performance of the End Product (As Opposed to the Components Used to make the End Product)

We urge the Commission in its anticipated rulemaking to measure compliance with the resulting new standard in terms of the fire performance of the finished product (or a reduced scale prototype of the finished product), as opposed to the performance of the individual components used to make the finished product. This approach is necessary for two reasons. First, a given raw material could perform differently depending on the design of the finished product and the other materials with which it is used. As a result, the fire performance of a raw material in isolation is not necessarily indicative of how it will perform in a finished product.

Second, there will be no unique solution for reducing bedroom fire risks. Rather, it is important that the affected industries be able to use a variety of product designs and materials, many of which will evolve from product innovation, in order to satisfy the new standard. Such improvements can be best achieved by using a finished product performance test to measure compliance.

2. The Standard Should Make it Feasible to Test Product at the Manufacturer's Premises

The new standard should permit manufacturers to demonstrate their compliance with that standard by performing product performance tests at their own premises. As manufacturers test new ideas to determine whether different designs or combinations of materials will produce safer beds, product failures (i.e., sleep set fires) are bound to occur. However, no mattress manufacturers operate facilities in which full-scale sleep set tests can be safely performed. Therefore, in order to have a workable

flammability standard that will encourage product innovation, the new standard should ideally allow for performance tests to be conducted using "scaled-down" versions of full-size finished products that have been shown to predict the performance of the same product in a full-scale fire test.

II. Existing Standard or Portion of an Existing Standard That Could be Used as a Proposed Rule

The SPSC is aware of no existing standard or portion of an existing standard that would address the risk of injury presented in a residential setting by an ignited bedding system.

III. Intention to Modify or Develop a Relevant Voluntary Standard

Likewise, the SPSC is aware of no intention of any party to modify or develop any voluntary standard that would address the risk of injury presented by an ignited bedding system. Moreover, we think it is unlikely that any private entity would come forward to establish such a voluntary safety standard given that courts have recently imposed significant liabilities on trade associations and other groups that have participated in standards setting activities. See e.g., *Meneely v. S.R. Smith*, 101 Wash. App. 845, 5 P.3d 49 (2000) (swimming pool trade association held liable for injuries suffered by swimmer injured when using diving board that complied with voluntary safety standard issued by association).

In addition, a voluntary standard is likely not feasible under the circumstances. Given the different products whose combustibility the anticipated rulemaking proceeding must address, we believe that it would be impractical for the affected industries to agree on a voluntary standard that could distribute the burden of product modification in an economically equitable and efficient manner among the manufacturers of all of the products that make up a bedding system.

Furthermore, a mandatory federal standard issued by the Commission has several important advantages over a voluntary standard. First, a mandatory federal standard would pre-empt different state standards that address the same risk of injury. As you are aware, the State of California will soon commence a rulemaking proceeding to establish a new state flammability standard concerning bed fires caused by small open-flame ignitions. In that proceeding, California will also consider the impact that various ignited bedding accessories can have on a mattress. To the extent that the California standard (and any similar standards issued by other states) is different from a mandatory federal standard issued under the Flammable Fabrics Act ("FFA"), the state standard would be pre-empted. A voluntary standard would not have such pre-emptive effect.

Second, a mandatory standard would set a "level playing field" upon which all mattress manufacturers must play. It would reduce or eliminate the risk that individual manufacturers might choose to compromise consumer safety by ignoring or only partially complying with a voluntary standard.

This is especially important given that many bedding accessories are imported. The SPSC is concerned that foreign manufacturers might not comply with any voluntary standard that might be developed despite the foregoing obstacles. By contrast, a mandatory standard promulgated under the Flammable Fabrics Act would apply equally to domestically produced and imported products.

Thus, the mattress industry believes for the foregoing reasons that only a single comprehensive mandatory FFA standard that covers both smoldering cigarettes and small open-flame heat sources that could ignite those products that comprise a full bedding system would be appropriate to accomplish the desired results of the anticipated rulemaking.

IV. Information About Materials that Would Improve Product Performance

The scientific and other research that the SPSC has commissioned NIST and others to undertake has not focused on evaluating the fire performance of particular component materials or product designs, or on developing new products for this purpose. The SPSC is generally aware that a number of companies either now market or are developing products that could reduce the combustibility of several finished products used in a bedding system. Nevertheless, the SPSC has no specific or technical information on these products. In any event, the SPSC understands that various companies that specialize in this field have met privately with the Commission to discuss their research and the products that they now offer or are in the process of developing.

V. Possible Adverse Consequences that an Open-Flame Standard Might Have on the Existing Standard

It appears from this question and the reference to "16 CFR Part 1633" in the caption to the ANPR that the Commission is considering maintaining the Existing Standard codified in Part 1632 for cigarette ignitions, and establishing a separate standard under Part 1633 to address small open-flame ignitions. The mattress industry would strongly object to such an approach.

Fire experts agree that open-flame ignitions present substantially different problems than those posed by smoldering cigarettes because open-flame burning and smoldering involve two different combustion mechanisms. As a result, some components used to make mattresses smolder resistant either may not perform well when the product is exposed to an open flame, or could actually increase the risk of an open-flame ignition. Therefore, in order to avoid confusion, wasted effort, and the risk of establishing a new standard in Part 1633 that might operate at cross purposes to the Existing Standard in Part 1632, the SPSC urges the Commission to establish a single fully-integrated flammability standard that would cover both smoldering cigarette (likely using a test method similar to that required by the Existing Standard) and small open-flame ignitions. The new integrated standard would supersede the Existing Standard now codified under Part 1632.

VI. The Appropriate Scope for the Anticipated Standard

As noted in Part I.A. of these comments above, the SPSC believes that the relevant product scope for the anticipated rulemaking should not be limited to reducing the

combustibility of mattresses alone. Rather, the product scope should also include all bedding accessories that can have a significant impact on the size and intensity of a bed fire (such as the mattress pad, pillow, comforter, etc.).

Miscellaneous Issues

The ANPR contains several relatively minor factual errors. For the record, the SPSC urges the Commission to correct the following points:

- The ANPR states that ISPA represents wholesalers, retailers and manufacturers of conventional mattresses, 66 Federal Register at 51887. In general, however, ISPA does not represent mattress wholesalers and retailers except for those so-called "factory direct" manufacturers that operate retail outlets to sell their products.

- The ANPR states that the top four mattress companies control about one-half of the approximately 800 mattress manufacturing facilities that operate throughout the country and account for over 50% of total U.S. mattress output, 66 Federal Register at 51887. In fact, those four companies control far less than one-half of the individual U.S. mattress manufacturing plants now operating even though they represent more than 50% of national mattress output.

- The ANPR states that ISPA and NASFM conducted the four-city study of bedroom fires, 66 Federal Register at 51888. In fact, NASFM and the SPSC conducted the study.

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The SPSC appreciates the opportunity to submit these comments concerning the Commission's ANPR. Please contact us if you have any questions regarding our comments.

Sincerely,

Patricia Martin

Patricia A. Martin
Executive Director

Matthew Comment 16

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December 10, 2001

BY FACSIMILE

Office of the Secretary
Consumer Product Safety Commission
Washington, D.C. 20207 -0001

Re: **Mattress ANPR**
Standard To Address Open Flame Ignition of
Mattresses/Bedding
66 Federal Register 51886 (October 11, 2001)
Our File: HFPA-001

Dear Commissioners:

The Home Fashion Products Association, Inc. headquartered in New York, New York (hereafter "HFPA") is a national, non-profit organization dedicated to advancing the common interests of the home fashions products industry through a variety of programs and activities. The membership encompasses over 75 manufacturers and suppliers of window treatments, bath & bed décor, drapery and upholstery fabrics, kitchen textiles, table linens and related accessory classifications.

HFPA supports industry's and the government's efforts to decrease the risk of mattress fires and reduce the number of resulting fatalities. HFPA recognizes the CPSC's strong efforts and studies of the issue, especially the interplay between mattresses and bedding.

In response to the Advanced Notice of Proposed Rulemaking referenced above, HFPA respectfully agrees that any open flame ignition standard should apply solely to mattresses and not to bedding. HFPA believes that the CPSC tests described in the ANPR have shown that bedding is not a significant factor in "flashover" scenarios, unlike mattresses, and does not warrant a federal flammability standard.

CONCLUSION

HFPA believes that any regulation of bedding products with regard to flammability is unsupported by the NIST tests and should be left for the market to decide. HFPA also believes that any NPRM regarding flammability regulation considered by the CPSC should not include bedding.

If you have any questions, please do not hesitate to contact us at (212) 297-2122.

Sincerely,

Park B. Smith
President

Stevenson, Todd A.

From: Robert J. Leo [robert.leo@mscustoms.com]
Sent: Tuesday, December 11, 2001 1:45 PM
To: *cpsc-os@cpsc.gov*
Subject: Mattress ANPR comments

Importance: High

HFPAcpsccomments.d
oc

Dear CPSC: Attached are the comments of the Home Fashion Products Association in response to the ANPR dated October 11, 2001 regarding the open flame standard for mattresses and bedding. Due to a transmission error, we were not aware until this afternoon that you did not receive this yesterday. A signed copy will follow by facsimile and by mail.

Thank you for your consideration. Regards, Robert Leo, Counsel for HFPA.

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****** If you did not receive all pages, please call as soon as possible******
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TO:	Consumer Product Safety Commission	
FIRM:	CPSC-Mattress ANPR	
FACSIMILE NUMBER:	(301) 504-0127	
FROM:	Robert J. Leo	
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